

### REMARKS

Claims 14, 21, 27, 31, 37, and 38 are currently being amended. Claims 1-13, 15-20, and 35 have been cancelled. Claims 14, 21-34, and 36-38 are now pending in this application. In view of the amendments and the following remarks, Applicant respectfully requests reconsideration of the present application and submits that the application is in condition for allowance.

The amendments to claims 14, 37, and 38 incorporate limitations from now cancelled claims 19, 20, and 35. The amendments to claims 21, 27, and 31 correct dependencies based on the cancelled claims and address concerns of the Examiner.

The Examiner rejected claims 14, 27, and 37 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In the Office Action, claims 14, 19-22, 26, 29, 31-32, 35, 36, and 38 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,858,450 (Jones). In the Office Action, claims 1, 20, 31-32, and 35-36 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,551,557 (Rose et al.). In the Office Action, claims 14, 26-28, 31-32, 35, and 36 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Publication No. 2003/0099573 (Tseung et al.). In the Office Action, claims 30, 33, and 34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones. In the Office Action, claims 23 and 33 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones and further in view of U.S. Patent No. 4,957,009 (Nohl et al.). In the Office Action, claims 23-25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones and further in view of U.S. Patent No. 4,942,018 (Munk). In the Office Action, claims 27 and 28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones and further in view of U.S. Patent No. 6,656,724 (Heimberg et al.). In the Office Action, claims 27, 28, and 37 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones and further in view of U.S. Patent No. 4,422,151 (Gilson). Applicant respectfully traverses these rejections.

**I. Rejection of Claims Under 35 U.S.C. § 112**

The Examiner rejected claims 14, 27, and 37 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant has amended claims 14, 27, and 37 to particularly point out and distinctly claim the subject matter. As a result, Applicant respectfully requests that the Examiner withdraw the rejection of claims 14, 27, and 37 under 35 U.S.C. § 112, second paragraph.

**II. Rejection of Claims 14, 19-22, 26, 29, 31-32, 35, 36, and 38 under 35 U.S.C. § 102(b)**

In the Office Action, claims 14, 19-22, 26, 29, 31-32, 35, 36, and 38 were rejected under 35 U.S.C. § 102(b) as being anticipated by Jones. Applicant respectfully traverses this rejection.

On pages 4-7 of the Office Action dated 8/09/2005, the Examiner discusses Jones and its relationship to various elements of claim 1. **Examiner fails to show any disclosure or teaching in Jones that corresponds with a pump valve as recited in claims 14 and 38.** Examiner specifically states “[t]he pump 36 is operated by a valve 38 (pump valve) connected to the sources 30 and 32 of pressure and vacuum and controlled by the device 14.” (Office action dated 8/09/2005, page 6). Jones fails to teach, suggest, or describe that valve 38 is automatically movable between a first position and “a second position where the probe pump communicates with the source of dilutant for rinsing the probe, the pump valve rinsing the probe with dilutant after the injector valve loads the sample and injects the sample towards the sample analyzer.”

Claim 14, with emphasis added, recites:

wherein the pump valve is movable between a first position where the probe pump is operable to dispense and to aspirate a sample through the probe, and a second position where the probe pump communicates with the source of dilutant for rinsing the probe, the pump valve rinsing the probe with dilutant after the injector valve loads the sample and injects the sample towards the sample analyzer.

Claim 38, with emphasis added, recites:

placing a pump valve into a rinse position automatically using a controller after forcing the liquid sample toward the sample analyzer.

Jones describes a “sampling, mixing and metering apparatus” (Col. 1, lines 67-68) including a “sampling head 12 [that] includes a valve mechanism 16 defined by first and second valve blocks 18 and 20 respectively, linearly movable (slidable) relative to each other between two valve positions, namely, a sampling position and a delivery position” (Col. 1, lines 1-3). Jones further describes “a sample pump 36 for withdrawing some of a liquid sample from the cup 24.” (Col. 4, lines 20-23). Jones still further describes a “scavenge vacuum device 54 [that] extracts or evacuates most of the sample left in passageway 90 (and the probe 92 connected thereto) .... Also, the vacuum acting through the conduit 93 of pump 36 cooperates with the pressure supplied through valve 38 to pump 36 to return the same to its extracting position.” (Col. 8, lines 32-39). Thus, Jones describes a valve mechanism 16 that is movable between two positions, neither of which is to rinse the probe. Jones further describes a pump 36 that is movable to aspirate and to dispense a sample, but not to rinse the probe. Jones still further describes a vacuum device that extracts or evacuates, but does not rinse. Therefore, Jones fails to teach, suggest, or describe a pump valve that includes “a second position where the probe pump communicates with the source of dilutant for rinsing the probe, the pump valve rinsing the probe with dilutant after the injector valve loads the sample and injects the sample towards the sample analyzer” as required by claim 14. Jones similarly fails to teach, suggest, or describe “placing a pump valve into a rinse position automatically using a controller after forcing the liquid sample toward the sample analyzer” as required by claim 38.

As a result, Jones fails to disclose, suggest, or teach all of the limitations of claims 14 and 38. An anticipation rejection cannot properly be maintained where the references used in the rejection do not disclose all of the recited claim elements. Applicant respectfully traverses any arguments posed by Examiner relative to claims 21-34 and 36 as they are allowable for at least

the reasons outlined above relative to claims 14 and 38. Therefore, Applicant respectfully requests withdrawal of the rejection of claims 14, 21-34, 36, and 38.

**III. Rejection of Claims 1, 20, 31-32, and 35-36 Under 35 U.S.C. § 102(b)**

In the Office Action, claims 1, 20, 31-32, and 35-36 were rejected under 35 U.S.C. § 102(b) as being anticipated by Rose et al. Applicant respectfully traverses this rejection. Applicant previously cancelled claim 1. Thus, Applicant assumes that the Examiner is actually referencing claim 14 and not claim 1 in this rejection.

On page 7 of the Office Action dated 8/09/2005, the Examiner briefly discusses Rose et al. and its relationship to various elements of claim 1. **Examiner fails to show any disclosure or teaching in Rose et al. that corresponds with a pump valve as recited in claim 14.** Examiner specifically states “[v]arious shut-off valves 25 (pump valve) and check valves (not shown) may also be used, as desired or needed, to direct the flow of fluid 14 to and/or from the reservoir 16 (dilutant/mobile phase), syringe pump 22 and dispenser 12.” (Office action dated 8/09/2005, page 7). Rose et al. fails to teach, suggest, or describe that shut-off valve 25 is automatically movable between a first position and “a second position where the probe pump communicates with the source of dilutant for rinsing the probe, the pump valve rinsing the probe with dilutant after the injector valve loads the sample and injects the sample towards the sample analyzer.”

Rose et al. describes a “random access print head for the transfer of microfluidic quantities of fluid.” (Abstract). Rose et al. states that “[v]arious shut-off valves 25 and check valves (not shown) may also be used, as desired or needed, to direct the flow of fluid 14 to and/or from the reservoir 16, syringe pump 22 and dispenser 12.” (Col. 11, lines 49-52). Rose et al. further describes that “the wash fluid reservoir 16 may be any one of a number of suitable receptacles capable of allowing the wash fluid 14, such as distilled water, to be siphoned into pump 22.” (Col. 12, lines 4-7). Thus, Rose et al. describes a shut-off valve that is either on or off. Rose et al. further describes a wash reservoir that siphons water into the pump 22, but not

into the dispenser 12. Therefore, Rose et al. does not teach, suggest, or describe a pump valve that includes “a second position where the probe pump communicates with the source of dilutant for rinsing the probe, the pump valve rinsing the probe with dilutant after the injector valve loads the sample and injects the sample towards the sample analyzer.”

As a result, Rose et al. fails to disclose, suggest, or teach all of the limitations of claim 14. An anticipation rejection cannot properly be maintained where the references used in the rejection do not disclose all of the recited claim elements. Applicant respectfully traverses any arguments posed by Examiner relative to claims 21-34, and 36 as they are allowable for at least the reasons outlined above relative to claim 14. Therefore, Applicant respectfully requests withdrawal of the rejection of claims 14, 21-34, and 36.

#### **IV. Rejection of Claims 14, 26-28, 31-32, 35, and 36 Under 35 U.S.C. § 102(e)**

In the Office Action, claims 14, 26-28, 31-32, 35, and 36 were rejected under 35 U.S.C. § 102(e) as being anticipated by Tseung et al. Applicant respectfully traverses this rejection.

On page 8 of the Office Action dated 8/09/2005, the Examiner briefly discusses Tseung et al. and its relationship to various elements of claim 1. **Examiner fails to show any disclosure or teaching in Tseung et al. that corresponds with a pump valve as recited in claim 14.** Examiner specifically states that the “device further includes an injector valve 57, a pump valve 56, and probe pump 46 (see Figure 4).” Tseung et al. describes an “automated staining system.” (Abstract). Tseung et al. states that the “bulk fluid dispensing tube 36 is capable of dispensing buffer solution from a buffer supply (not shown) delivered by supply line 41 or reagents delivered via supply lines 42 and 43 from internal bulk reagent supplies (not shown), as selected by a distribution valve 44.” (Paragraph [0031], emphasis added). Tseung et al. shows elements 56 and 57 in FIG. 4, but these elements are not mentioned in the specification. Tseung et al. makes no other mention of a valve. Therefore, Tseung et al. fails to teach, suggest, or describe at least the pump valve of claim 14 that requires “a second position where the probe pump communicates with the source of dilutant for rinsing the probe, the pump valve rinsing the probe

with dilutant after the injector valve loads the sample and injects the sample towards the sample analyzer.”

As a result, Tseung et al. fails to disclose, suggest, or teach all of the limitations of claim 14. An anticipation rejection cannot properly be maintained where the references used in the rejection do not disclose all of the recited claim elements. Applicant respectfully traverses any arguments posed by Examiner relative to claims 21-34 and 36 as they are allowable for at least the reasons outlined above relative to claim 14. Therefore, Applicant respectfully requests withdrawal of the rejection of claims 14, 21-34, and 36.

**V. Rejection of Claims 30, 33, and 34 Under 35 U.S.C. § 103(a)**

In the Office Action, claims 30, 33, and 34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones. Applicant respectfully traverses this rejection because the Examiner has failed to present a prima facie case of obviousness. MPEP § 2143 states:

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

At a minimum, as discussed in Section II. above, the Examiner has failed to demonstrate that Jones discloses, teaches, or suggests all of the claim limitations as recited in claims 30, 33, and 34. Jones fails to teach the pump valve as required by claim 14. An obviousness rejection cannot be properly maintained where the references used in the rejection do not disclose all of the recited claim elements. Therefore, Applicant respectfully requests withdrawal of the rejection of claims 30, 33, and 34 which depend from claim 14.

**VI. Rejection of Claims 23 and 33 Under 35 U.S.C. § 103(a)**

In the Office Action, claims 23 and 33 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones and further in view of Nohl et al. Applicant respectfully traverses this

rejection because the Examiner has failed to present a prima facie case of obviousness. At a minimum, the Examiner has failed to demonstrate that Jones and Nohl et al. in combination disclose, teach, or suggest all of the claim limitations as recited in claims 23 and 33. As discussed in Section II. above, Jones fails to teach the pump valve as required by claim 14.

Nohl et al. describes “a pushloop liquid sampling method.” (Nohl et al., Abstract). Nohl et al. further describes:

First, as shown in FIG. 2A, three way valve 42 is switched so as to connect the reservoir 44 of flush solvent to syringe 32. Plunger 33 of syringe 32 is withdrawn so as to pull a small amount of flush solvent, typically 3  $\mu$ L, into syringe 32. The amount of flush solvent pulled by the plunger 33 must be enough to account for backlash in the drive mechanism 45 for syringe 32.

Second, in FIG. 2B, three way valve 42 is switched so syringe 32 is connected to transport tubing 46. Six port valve 30 is in the "INJECT" position. The three-way valve 42 is closed so the flush reservoir 44 is no longer connected to syringe 32. The plunger 33 is withdrawn so as to pull a small air bubble 48 into needle 50. Then sample vial 52 is lifted into the sample tower 34.

Third, in FIG. 2C, the desired amount of sample 54 (such as 30  $\mu$ L for a 10  $\mu$ L injection) is drawn out of sample vial 52 by further withdrawing plunger 33. Sample 54 is preceded by air bubble 48.

(Nohl et al., Col. 18, lines 24-25). Thus, Nohl et al. aspirates a flush solvent and in the next step aspirates the sample so that the solvent and the sample are separated by an air bubble. The sample is then dispensed. Therefore, Nohl et al. fails to teach the limitation “the pump valve rinsing the probe with dilutant after the injector valve loads the sample and injects the sample towards the sample analyzer.” As a result, neither Jones nor Nohl et al. disclose, suggest, or teach all of the limitations of claim 14. An obviousness rejection cannot be properly maintained where the references used in the rejection do not disclose all of the recited claim elements. Therefore, Applicant respectfully requests withdrawal of the rejection of claims 23 and 33 which depend from claim 14.

**VII. Rejection of Claims 23-25 Under 35 U.S.C. § 103(a)**

In the Office Action, claims 23-25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones and further in view of Munk. Applicant respectfully traverses this rejection because the Examiner has failed to present a prima facie case of obviousness. At a minimum, the Examiner has failed to demonstrate that Jones and Munk in combination disclose, teach, or suggest all of the claim limitations as recited in claims 23-25. As discussed in Section II. above, Jones fails to teach the pump valve as required by claim 14.

Munk describes “[s]olvent composition gradients in high performance liquid chromatography.” (Munk, Abstract). Munk further states that “[s]olvent A 24 can be metered into the bed by the graduated syringe 42. .... Because the system is closed except for the fill and drain ports ..., the amount of solvent A 24 introduced will displace an equal amount of solvent B 30 from the drain port 40b (assuming there is no change in volume upon mixing the two solvents).” (Munk, Col. 6, lines 38-47, emphasis added). Thus, Munk teaches use of a valve to control mixing of solvents. Therefore, Munk fails to teach the limitation “the pump valve rinsing the probe with dilutant after the injector valve loads the sample and injects the sample towards the sample analyzer.” As a result, neither Jones nor Munk disclose, suggest, or teach all of the limitations of claim 14. An obviousness rejection cannot be properly maintained where the references used in the rejection do not disclose all of the recited claim elements. Therefore, Applicant respectfully requests withdrawal of the rejection of claims 23-25 which depend from claim 14.

**VIII. Rejection of Claims 27 and 28 Under 35 U.S.C. § 103(a)**

In the Office Action, claims 27 and 28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones and further in view of Heimberg et al. Applicant respectfully traverses this rejection because the Examiner has failed to present a prima facie case of obviousness. At a minimum, the Examiner has failed to demonstrate that Jones and Heimberg et al. in combination disclose, teach, or suggest all of the claim limitations as recited in claims 27 and 28. As discussed in Section II. above, Jones fails to teach the pump valve as required by claim 14.

Heimberg et al. describes “a pipette apparatus.” (Heimberg et al., Abstract). Heimberg et al. further describes that the “pipette tip is connected via a thin tube 21 to two pumps 22, 23. The pump 22 is a syringe pump for precise microdispensing (1  $\mu$ l) whereas the second pump 23 is a wash pump having a greater thruput (e.g.  $\geq 100$  ml/min) than the syringe pump 22 and is used for washing the pipette tip 20.” (Heimberg et al., Col. 3, lines 20-25). Thus, Heimberg et al. teaches use of two separate pumps: 1) a first pump to aspirate and to dispense sample, and 2) a second pump to rinse the pipette tip. Therefore, Heimberg et al. fails to teach the limitation

wherein the pump valve is movable between a first position where the probe pump is operable to dispense and to aspirate a sample through the probe, and a second position where the probe pump communicates with the source of dilutant for rinsing the probe, the pump valve rinsing the probe with dilutant after the injector valve loads the sample and injects the sample towards the sample analyzer.

As a result, neither Jones nor Heimberg et al. disclose, suggest, or teach all of the limitations of claim 14. An obviousness rejection cannot be properly maintained where the references used in the rejection do not disclose all of the recited claim elements. Therefore, Applicant respectfully requests withdrawal of the rejection of claims 27 and 28 which depend from claim 14.

**IX. Rejection of Claims 27, 28 and 37 Under 35 U.S.C. § 103(a)**

In the Office Action, claims 27, 28, and 37 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones and further in view of Gilson. Applicant respectfully traverses this rejection because the Examiner has failed to present a prima facie case of obviousness. At a minimum, the Examiner has failed to demonstrate that Jones and Gilson in combination disclose, teach, or suggest all of the claim limitations as recited in claims 27, 28, and 37.

Claims 14 and 37 recite:

wherein the pump valve is movable between a first position where the probe pump is operable to dispense and to aspirate a sample

through the probe, and a second position where the probe pump communicates with the source of dilutant for rinsing the probe, the pump valve rinsing the probe with dilutant after the injector valve loads the sample and injects the sample towards the sample analyzer.

As discussed in Section II. above, Jones fails to teach the pump valve as required by claim 14. For the same reasons, Jones fails to teach the pump valve as required by claim 37.

Gilson describes “a liquid handling apparatus.” (Gilson, Abstract). Gilson further describes that “[t]his power source may be utilized to control an auxiliary pinch valve.” (Gilson, Col. 5, lines 67-68). Gilson makes no other mention of a valve of any kind. Therefore, Gilson fails to teach the pump valve as required by claims 14 and 37. As a result, neither Jones nor Gilson disclose, suggest, or teach all of the limitations of claims 14 and 37. An obviousness rejection cannot be properly maintained where the references used in the rejection do not disclose all of the recited claim elements. Therefore, Applicant respectfully requests withdrawal of the rejection of claims 27 and 28 which depend from claim 14 and the rejection of claim 37.

For the foregoing reasons, it is submitted that all of the claims that have been examined in this application should be in condition for allowance.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 50-2350. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 50-2350. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 50-2350.

Respectfully submitted,

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